individual learning process is widened to apply to " aggressive social movements "and to " defensive social movements," and to bear upon " psychological conditions of peace " and " the present war and the future peace."

Much of what May has to say is undoubtedly sound psychology, and few of his colleagues would deny the paramount importance of the factor of social learning in this sphere. Nor would they disagree with him on the general thesis that innate behaviour of an " instinctual " kind does not provide an adequate explanation of war-like behaviour. It is perhaps more doubtful if they would as readily accept the " frustration-aggression " hypothesis espoused by the Institute, and set forth very clearly by May. They might with justice complain that in relation to this particular hypothesis, as well as in relation to the other arguments put forward in his book, May relies too much on argument and persuasion, and too little on experimentally ascertained fact. Even where he does appeal to experiment, the evidence is not always as clear as one might wish. As an instance, one might mention his use of the Hovland-Sears study of correlation of lynching with economic indices as support of the frustration-aggression hypothesis ; this study has been criticised rather severely on statistical grounds, and the alleged correlation has been shown to be in part at least an artefact. No mention is made of these criticisms, and the reader without specialist knowledge may regard as proved what is still doubtful.

However, as the book is presumably regarded as a rather popular presentation of complex facts and arguments, perhaps one should rather congratulate the author on his exceptional clarity, conciseness and consistency, than cavil at such minor imperfections. While adding little to our knowledge, the book could with great advantage be used to popularize the position psychology holds at present with respect to the very ancient problems mentioned in the first paragraph of this review. Little appreciation, it would appear, is shown by leaders of thought, by politicians, statesmen, journalists and military leaders, of the contribution that psychology has made to the discussion of these problems ; this book serves as an excellent introduction for the educated layman to a fuller understanding of the psychology of war and peace.

H. J. EYSENCK.

PSYCHIATRY

Fraser, Russell, and others. *The Incidence of Neurosis among Factory Workers.* M.R.C. Industrial Health Research Board Report No. 90. London, 1947. H.M. Stationery Office. Pp. 66. Price 1s. 3d.

THE results of even carefully planned work, at least in psychiatry and sociology, are often met with the reproach that nothing has been learned which was not known before. But the criticism is frequently unjustified. Like much proverbial wisdom, two pieces of generally accepted " knowledge " may be mutually contradictory ; and the man in the street is quite capable of entertaining two diametrically opposed opinions at the same time. There is in any case a great difference between " knowing " that considerable and abnormal responsibilities are bad for mental health, and being provided with a fairly precise estimate of just how much neurotic illness they cause in a population of factory workers. The report of Dr. Russell Fraser and his collaborators has not perhaps met with the acclaim it deserves, because it has not been recognized how much information it provides on a singularly nebulous topic. From it we can learn much about the social significance of neurotic disturbances in the working life of the community.

The work was on a large scale, and planned very carefully. The sample was made satisfactorily random, and covered factories in Birmingham, Lancashire and London. In all 1,446 men and 1,448 women between the ages of 21 and 60 were examined between September 1942 and December 1944. Each subject was examined on two occasions, a total of 1½ hours being needed on the average for history taking, clinical examina-

tion, intelligence and dynamometer tests, blood sample, and any necessary extras such as X-rays. The subjects were classified into those suffering from neurosis or physical illness, definite, minor or none ; 9 per cent of the men and 13 per cent. of the women were found to have suffered from definite neurosis during the past six months. There was a loss of 1·1 per cent of working days in the men and of 2·4 per cent of working days in the women, as compared with 3·3 per cent and 4·4 per cent of loss through accident or physical illness. Neurotic illness is, therefore, considerably less important than physical illness as a cause of disability, but still causes a material loss of working time, amounting to about three working days during the year in men. Women not only have more definite neurosis than men, but are relatively more disabled by it.

Dr. Fraser rejects the idea that the amount of neurosis in his sample can be accounted for by the circumstances of war. He also points out that all classes of workers are affected almost equally, skilled or unskilled, well or ill paid. " Therefore, failure to employ workers who suffer from neurotic illness, a practice that has been advocated in some quarters, would lead to wastage of the country's reservoir of skilled labour and, consequently, of productive capacity."

An extensive study of possible ætiological factors was made. Constitutional factors are important : past health record, physique, personality and employment record all bear a significant relation to the amount of neurosis. Age and intelligence, however, do not. Recent circumstances found to be associated with neurosis were : a working week of more than 75 hours, the least adequate diet, restricted contacts and recreational interests, widowhood, separation or marriage with partial home responsibilities, work found boring or disliked, very light sedentary work, work inappropriate to the intelligence of the worker, and certain other types of work and working conditions. War-time changes of residence or district and the type of house or district of residence showed no association. A comparable analysis of the factors associated with physical illness and with absence from work was also made, with much less in the way of positive findings. Claims are being pressed nowadays for a reduction of the working week to less than 50 hours, and even as low as 40 ; it is interesting that in 1942-4 in Dr. Fraser's sample the average working week was 61-74 hours, and that only when the hours exceeded 75 was there any significant increase in neurosis or absence from work.

An examination of the tables for neurosis and for physical illness brings out some points not mentioned explicitly in the report. Although many factors are shown to have an association with neurosis, their effects are, as a rule, not large. If we wished to apply such a technique as personnel selection to factory work, we would wish to find some variable which separated fairly cleanly between those liable to neurosis, physical illness or absence from work, and those not so liable. The differences between groups separated by Dr. Fraser's analysis, though often significant statistically, are generally not very great on the absolute scale. For instance, past health record, which discriminates well in neurosis, is much less efficient in physical health and in absence from work. Of the 256 men with a past history of neurosis, 21·5 per cent. were neurotic, compared with 5·8 per cent of the 1,190 men without such a past history. Those with a past history of physical illness numbered 313, and 29·4 per cent of them had definite physical illness, as against 17·5 per cent in the 1,133 men without such a history. But the percentage of days lost by men with past histories of both kinds was only 7·0, little more than the 5·0 among men with a clear past history.

It is very striking how much more numerous are the variables affecting the incidence of neurosis than are those affecting either physical illness or absence from work, and, as in the example above, how much greater are the differences between groups, when analysed in this way. We might say that neurosis is much more sensitive than either physical illness or absence from work to changes in the variables that Dr. Fraser examined. Or we might say that there is a

somewhat chimerical quality about neurosis ; it bulks rather larger in the medical eye than is warranted by the disability it produces.

ELIOT SLATER.

GENETICS

Jucci, Carlo. *Introduzione allo Studio della Genetica per Medici, Agrari e Naturalisti.* Milano, 1944. Ulrico Hoepli, Editore. Pp. xxiii + 419. Price Lire 400.

TEXTBOOKS on genetics exist now in all civilized countries, and their circulation is largely limited by the language in which they are written. The publication of a textbook in Italian, even of as competent and modern a work as that under review, would thus seem to be of little practical importance to readers in English-speaking countries. Nonetheless, Prof. Jucci's excellent book has a special claim to be known outside the borders of Italy. Since 1930 the author, in collaboration with C. Manunta, has studied the physiological genetics of the numerous cocoon colours occurring in the various races of the silkworm *Bombyx mori*. The results of these important investigations have been published exclusively in various Italian journals and have remained virtually unnoticed elsewhere. The present book gives an excellent summary, including six coloured plates, of this work. The pigmentation of the cocoon (if any) is derived entirely from the carotenoids and flavones ingested with the food. If these substances fail to pass from the digestive tract into the blood of the silkworm (a condition due to a recessive gene) a snow-white cocoon results. A dominant gene for white cocoons probably acts by oxidizing the carotenoids in the blood. In the various genotypes which give rise to coloured cocoons, the colour produced depends on the permeability of the silk glands for the various substances. For instances, in " Japanese green," carotenoids are absent and the colour is entirely due to flavones, probably to quercetin. In other genotypes, the colour is due to more or less complex mixtures of both types of substances, and further complications are introduced by the time relations of pigment deposition. In " limone " the yellow pigment (xanthophyll) occurs mainly in the outermost layers of the cocoon, while the inner layers contain very little. In " rosa " races, the outer layers contain mainly carotenoids, while the innermost layers are rich in xanthophylls which differ chemically from those of " limone."

In the field of developmental genetics in animals, there are only very few instances in which gene effects have so far been reduced to terms of quantitative chemistry. The importance of Prof. Jucci's investigations is thus obvious, and it is mainly for their sake that the English-speaking reader will wish to consult this new textbook on genetics.

HANS GRÜNEBERG.

PSYCHOLOGY OF WOMEN

Deutsch, Helene. *The Psychology of Women; a psycho-analytic interpretation.* Vol. 2. Motherhood. London, 1947. Research Books Limited. Pp. vi + 439.

Klein, Viola. *The Feminine Character. History of an Ideology.* London, 1946. Kegan Paul. Pp. xv + 228.

AT a time when the apparently contrasted interests of the individual and the society in which he dwells were never so clearly a matter of general significance, two contemporary and contrasted methods for investigating personality may suitably be considered together. These two books, concerned with the age-old problem of the nature of woman, provide excellent examples of the two approaches to a human problem of a general character. Until the advent of experimental psychology, psychometric tests and the psycho-analytical technique, knowledge of woman's psychology was derived from novels, from love poems and lyrics, and from the definitions and aphorisms of the learned, like Aristotle, who could only find among a plethora of undesirable qualities that woman is more compassionate than man and requires a smaller quantity of food. The application of statistical methods to the validation of differences suspected from the